

EXHIBIT 4

Test Report

Test Report

TTEMC-F98092

File Number : ATM-G98092
Report Number : TTEMC-F98052
Date of Test : Feb. 20 / Apr. 09, 1998
Date of Report : Apr. 13, 1998

Te: 2609-9301, 2609-2133

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Prepared for : Microtek International Inc.
No. 6 Industry East Road 3
Science-Based Industrial Park,
Hsinchu, Taiwan, R.O.C.

FCC ID : EF9MRS-1200Y6S

Model : MRS-1200Y6S

APP LIC A TION FOR CERTIFICATION
On Behalf of
Microtek International Inc.
Image Scanner

1. GENERAL INFORMATION	1-1
1.1. Description of Device (EUT)	1-1
1.2. Details of Support Equipment	1-2
1.3. Description of Test Facility	1-3
2. POWERLINE CONDUCTED TEST	2-1
2.1. Test Equipment	2-1
2.2. Block Diagram of Test Setup	2-1
2.3. Conducted Powerline Emission Limit (CLASS B)	2-2
2.4. EUT Configuration on Measurement	2-2
2.5. Operating Condition of EUT	2-2
2.6. Test Procedure	2-3
2.7. Line Conducted RF Voltage Measurement Results	2-4
3. RADIATED EMISSION TEST	3-1
3.1. Test Equipment	3-1
3.2. Block Diagram of Test Setup	3-1
3.3. Radiation Limit (CLASS B)	3-2
3.4. EUT Configuration on Measurement	3-2
3.5. Operating Condition of EUT	3-2
3.6. Test Procedure	3-2
3.7. Radiated Emission Noise Measurement Results	3-3
4. DEVIAITION TO TEST SPECIFICATIONS	4-1
5.1. Photos of Powerline Conducted Measurement	5-1
5.2. Photos of Radiated Measurement on Open Field Test Site	5-2
5. PHOTOGRAPHS	5-1

Test Report Certification

Description

Page

TABLE OF CONTENTS

TEST REPORT CERTIFICATION

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART B CLASS B OCTOBER 1996
AND FCC / ANSI C63.4-1992

The device described above was tested by TAIWAN TOKIN EMC ENG. CORP. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15B Class B limits both radiated and conducted emissions.

The measurement results are contained in this test report and TAIWAN TOKIN EMC ENG. CORP. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits. TAIWAN TOKIN EMC ENG. CORP. recommends that this data was submitted for FCC certification purposes if a 6dB margin below FCC limits is obtained. This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Taiwan Tokin EMC Eng. corp.

Date of Test : Feb. 20 / Apr. 09, 1998

Prepared by : Monica Chang
(MONICA CHANG)

Test Engineer : Allen Wang
(ALLEN WANG)

Approve & Authorized Signer :

ner : 

(JACKIE DENG)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Image Scanner
Model Number	:	MRS-1200Y6S
FCC ID	:	EF9MRS-1200Y6S
Applicant	:	Microtek International Inc. No. 6 Industry East Road 3 Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.
Manufacturer	:	Microtek International Inc. No. 6 Industry East Road 3 Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.
Switching Power Supply	:	Kentex, M/N KTX-3332-2
Light Plate	:	Microtek, M/N MLP-XV Cable : Shielded, Undetachable, 0.2m Bonded a ferrite core
Data Cable	:	Shielded, Detachable, 1.5m Bonded a ferrite core
Power Cord	:	Nonshielded, Detachable, 1.8m
Date of Test	:	Feb. 20 / Apr. 09, 1998

1.2. Details of Support Equipments

1.2.1. PERSONAL COMPUTER

Model Number	:	D3498A
Serial Number	:	SG54300543
FCC ID	:	HCJVECTRAVE4
Manufacturer	:	Hewlett Packard
VGA Card	:	Within Mother Board
Scanner Driver Card	:	Adaptec. M/N AVA-1505Ae
		FCC ID By FCC DoC
Power Cord	:	Nonshielded, Detachable, 1.8m

1.2.2. MONITOR

Model Number	:	PM36A
Serial Number	:	W70204674A
FCC ID	:	LLW9ZB1564
Manufacturer	:	Funai Electric Company of Taiwan
Data Cable	:	Shielded, Undetachable, 1.2m
Power Cord	:	Nonshielded, Detachable, 1.5m

1.2.3. KEYBOARD

Model Number	:	E03633QLTWQ
Serial Number	:	N/A
FCC ID	:	CIGE03614
Manufacturer	:	Hewlett Packard
Data Cable	:	Shielded, Undetachable, 1.8m
		Bonded a ferrite core

1.2.4. PRINTER

Model Number	:	2225C+
Serial Number	:	3007S68643
FCC ID	:	DSI6XU2225
Manufacturer	:	Hewlett Packard
Power Adapter	:	Hewlett Packard, M/N 82241A
		Nonshielded, Undetachable, 2.0m
Data Cable	:	Shielded, Detachable, 1.2m

1.2.5. MODEM #1

Model Number	:	1414
Serial Number	:	950098201
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A
		Nonshielded, Undetachable, 1.8m

1.2.6. MODEM #2

Model Number	:	1414
Serial Number	:	950098203
FCC ID	:	IFAXDM1414
Manufacturer	:	Aceex
Data Cable	:	Shielded, Detachable, 1.2m
Power Adapter	:	Amigo, Model AM-91000A Nonshielded, Undetachable, 1.8m

1.2.7. MOUSE

Model Number	:	M-S34
Serial Number	:	LCA53202204
FCC ID	:	DZL210582
Manufacturer	:	Hewlett Packard
Data Cable	:	Shielded, Undetachable, 1.8m

1.2.8. SCAN MAKER

Model Number	:	PTS-1800
Serial Number	:	N/A
FCC ID	:	EF9PTS-1800
Manufacturer	:	Microtek International Inc.
SCSI Interface Cable	:	Shielded, Detachable, 2.0m Bonded a ferrite core
Power Cord	:	Nonshielded, Detachable, 1.8m

1.3. Description of Test Facility

Site Description	:	Jul. 15, 1996 Re-file on Federal Communication Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, U.S.A.
Name of Firm	:	Taiwan Tokin EMC Eng. Corp.
Site Location	:	No. 53-11, Tin-Fu Tsun, Lin-Kou, Taipei Hsien, Taiwan, R.O.C.
NVLAP Lab Code	:	200077-0

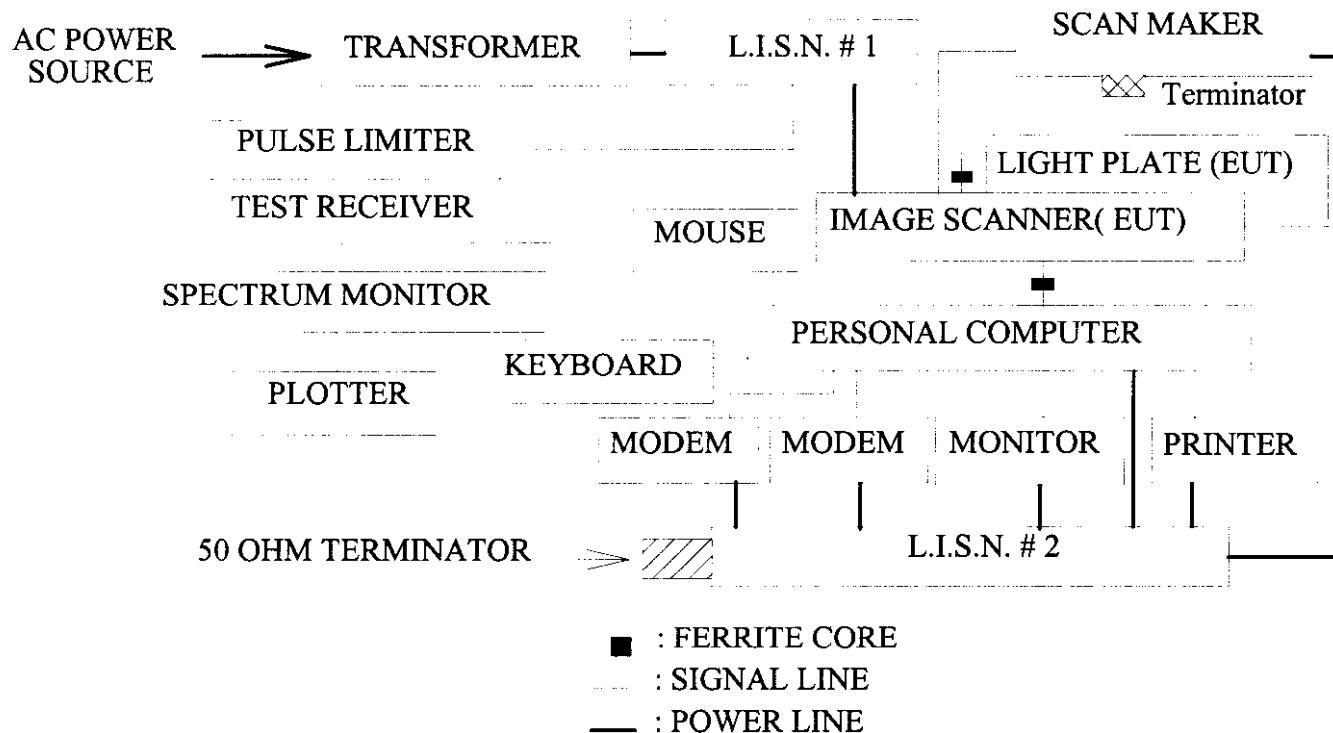
2. POWERLINE CONDUCTED TEST

2.1. Test Equipment

The following test equipments are used during the power line conducted tests :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESH3	893044/015	Aug.01, 97'	1 Year
2.	L.I.S.N. # 1	Kyoritsu	KMW-407	8-855-9	May.01, 97'	1 Year
3.	L.I.S.N. # 2	Kyoritsu	KMW-407	8-881-13	May.01, 97'	1 Year

2.2. Block Diagram of Test Setup



2.3. Conducted Powerline Emission Limit (CLASS B)

Frequency	Maximum RF Line Voltage	
	uV	dBuV
0.45MHz ~ 30MHz	250	48

REMARKS : RF LINE VOLTAGE (dBuV) = 20 log RF LINE VOLTAGE (uV)

2.4. EUT Configuration on Measurement

The following equipments were installed on RF LINE VOLTAGE measurement to meet the Commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

2.4.1. Image Scanner (EUT)

Model Number	:	MRS-1200Y6S
Serial Number	:	N/A
FCC ID	:	EF9MRS-1200Y6S
Manufacturer	:	Microtek International Inc.
Switching Power Supply	:	KENTEX, M/N KTX-3332-2
Light Plate	:	Microtek, M/N MLP-XV
		Cable : Shielded, Undetachable, 0.2m
		Bonded a ferrite core
Data Cable	:	Shielded, Detachable, 1.5m
		Bonded a ferrite core
Power Cord	:	Nonshielded, Detachable, 1.8m
2.4.2. Support Simulators	:	As in section 1.2.

2.5. Operating Condition of EUT

- 2.5.1. Setup the EUT and simulators as shown on 2.2.
- 2.5.2. Turned on the power of all equipments.
- 2.5.3. Setup the personal computer to drive the EUT through the Microtek's scanner driver card and software driver.
- 2.5.4. Data was communicated between host personal computer and Image Scanner (EUT) through scanner driver card.
- 2.5.5. The Light Plat (EUT) was lighting.
- 2.5.6. Personal Computer displayed the test software image by windows to monitor.
- 2.5.7. The other peripheral devices were driven and operated in turn during all testing.

2.6. Test Procedure

The EUT was connected to the power mains through a line impedance stabilization network (L.I.S.N. #1) and the other peripheral devices power cord were connected to the power mains through a line impedance stabilization network (L.I.S.N. #2). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to FCC ANSI C63.4-1992 during conducted measurement.

The bandwidth of the field strength meter (R & S Test Receiver ESH3) was set at 10KHz.

The frequency range from 450KHz to 30MHz was checked.

All the test results are listed in section 2.7.

2.7. Line Conducted RF Voltage Measurement Results

The frequency range from 450KHz to 30 MHz was investigated.

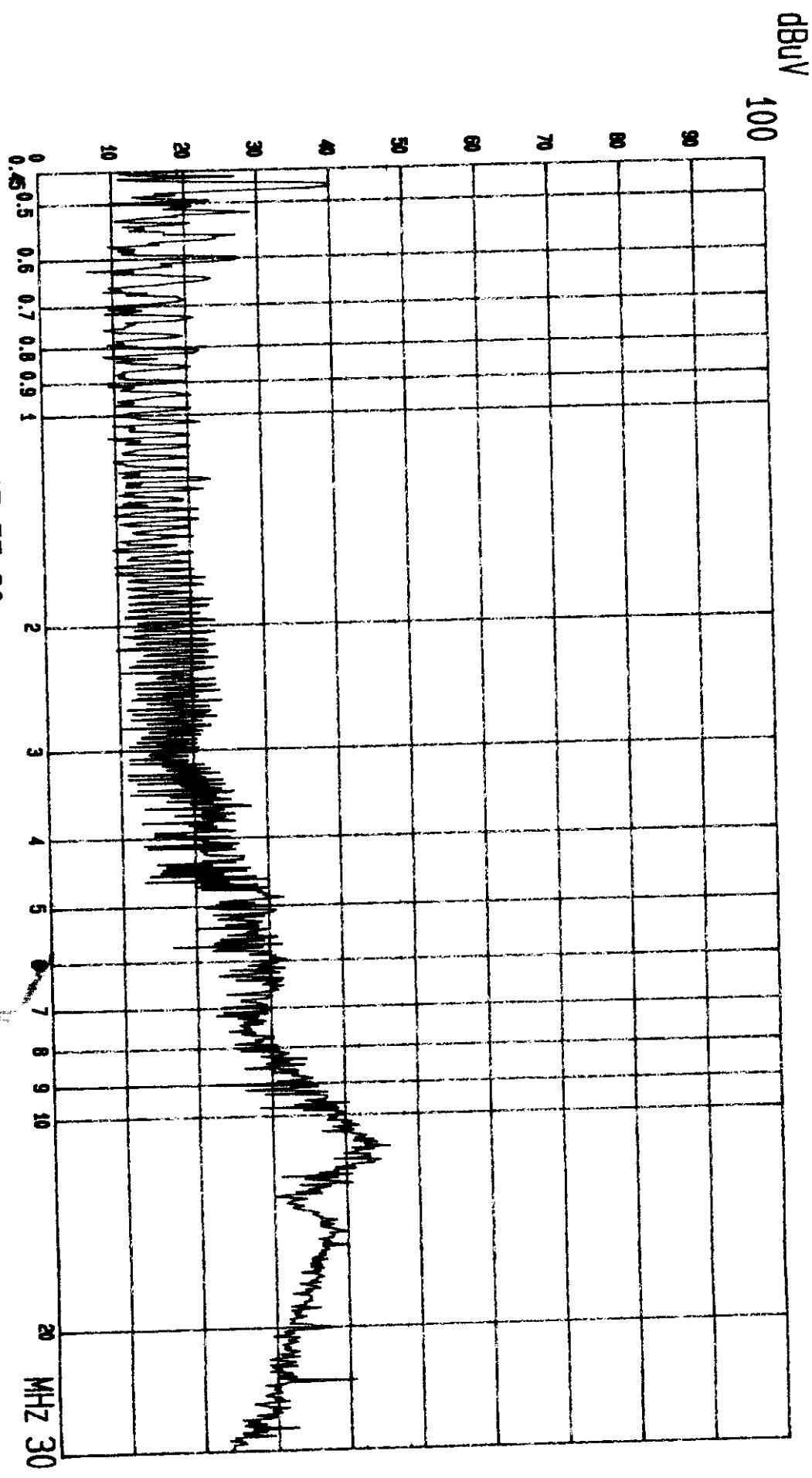
All emissions not reported below are too low against the prescribed limits.

Date of Test : Apr. 09, 1998 Temperature : 25 °C

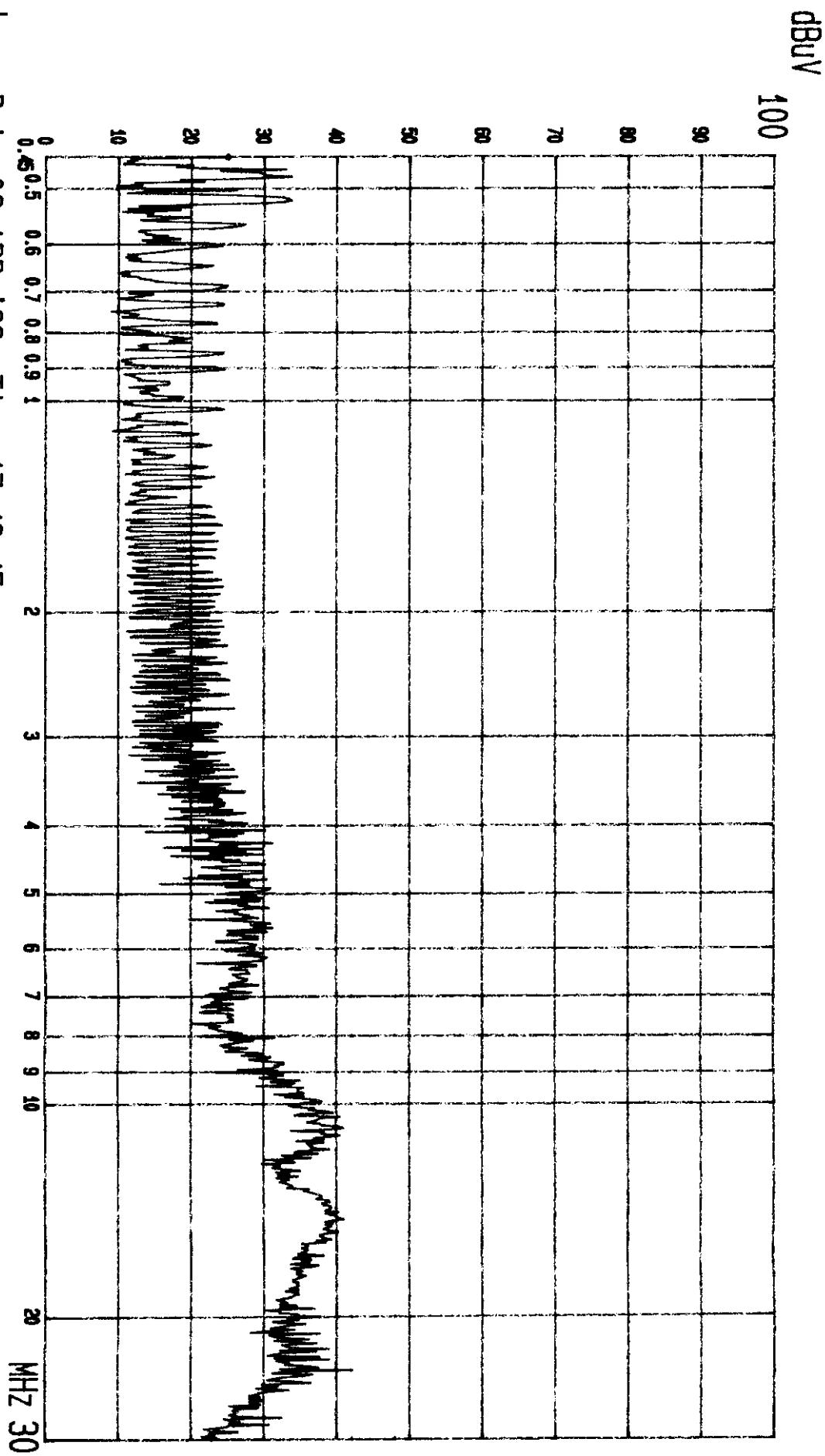
EUT : Image Scanner Humidity : 70 %

Frequency (MHz)	Factor dB	Measurement (dBuV)		Reading (dBuV)		Limits (dBuV)	Margin (dBuV)	
		VA	VB	VA	VB		VA	VB
0.4667	0.2	38.6	*	38.8	*	48.0	9.2	*
0.5109	0.2	*	31.3	*	31.5	48.0	*	16.5
0.5937	0.2	24.6	*	24.8	*	48.0	23.2	*
1.0278	0.2	*	23.4	*	23.6	48.0	*	24.4
5.5919	0.3	*	30.8	*	31.1	48.0	*	16.9
5.8891	0.3	29.2	*	29.5	*	48.0	18.5	*
10.7970	0.6	*	38.7	*	39.3	48.0	*	8.7
11.0527	0.6	41.8	*	42.4	*	48.0	5.6	*
11.5569	0.6	40.3	*	40.9	*	48.0	7.1	*
14.5546	0.6	*	36.3	*	36.9	48.0	*	11.1
15.2728	0.8	36.5	*	37.3	*	48.0	10.7	*
23.9979	1.1	40.0	40.2	41.1	41.3	48.0	6.9	6.7

Remark : 1. All readings are Quasi-Peak values.
 2. Factor = Insertion Loss + Cable Loss
 3. The worst emission was detected at 11.0527MHz with corrected signal level of 42.4dBuV (limit is 48dBuV) when the VA side of the EUT was connected to L.I.S.N.



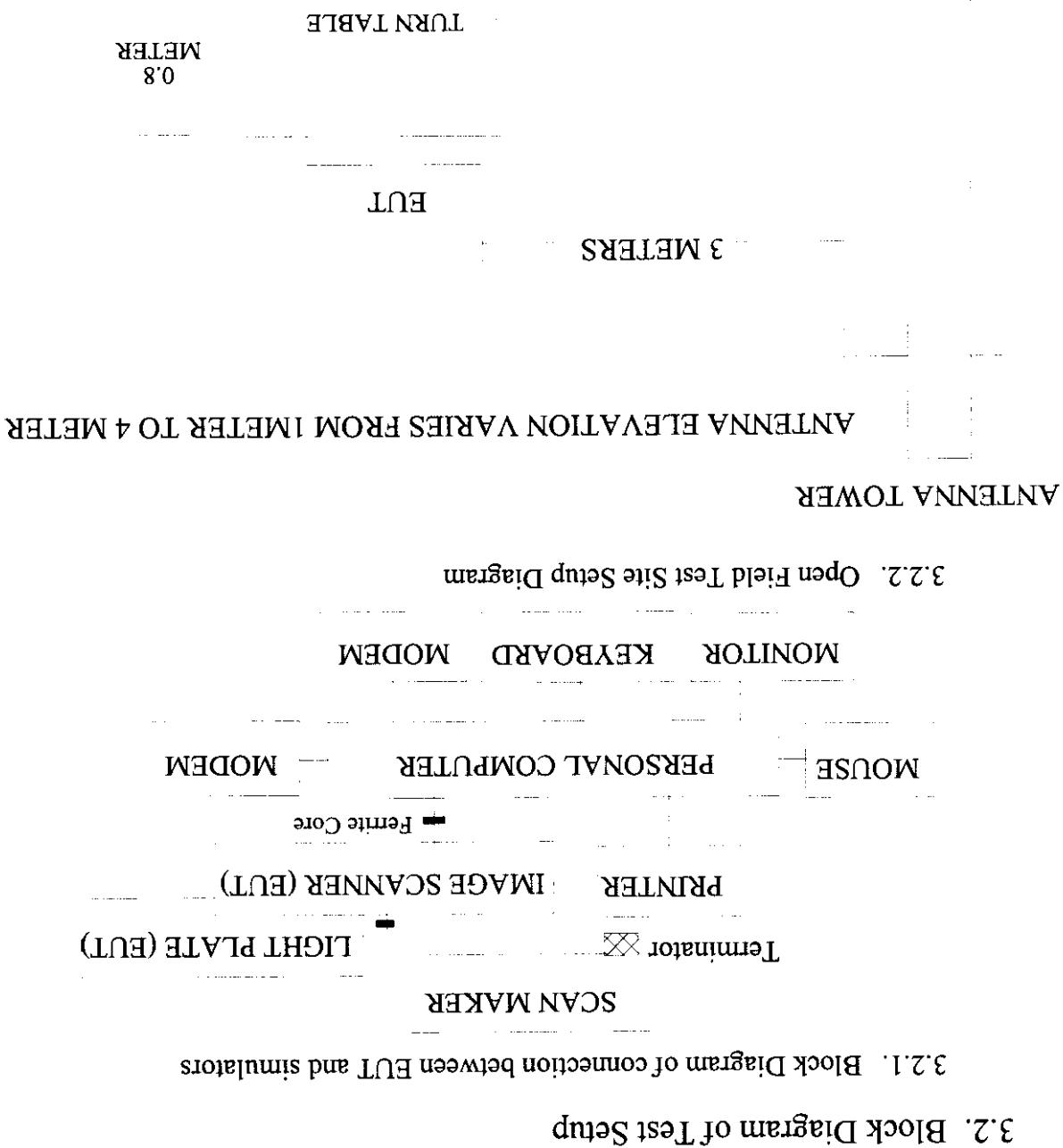
M/N: MRS-1200Y6S
(PEAK VALUE) TAIWAN TOKIN EMC. ENG. CORP.
PAGE: 002



--- Date 09 APR '98 Time 17: 49: 45
MICROTEK EUT: IMAGE SCANNER
LINE: VB.
MEMO: W/LIGHT PLATE; 1.5m CABLE

M/N: MRS-1200Y6S PAGE: 001.
(PEAK VALUE) TAIWAN TOKIN EMC. ENG. CORP.

GROUND PLANE



The following test equipments are used during the radiated emission tests :

3.1. Test Equipment

3. RADIADED EMISSION TEST

3.3. Radiation Limit (CLASS B)

FREQUENCY		FIELD STRENGTHS LIMITS	
MHz	Meters	uV/M	dBuV/M
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark : (1) Emission level (dBuV/M) = 20 log Emission level (uV/M)
 (2) The tighter limit applies at the edge between two frequency bands.
 (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. EUT Configuration on Measurement

The configuration of EUT and its simulators are same as those used in conducted measurement. Please refer to 2.4.

3.5. Operating Condition of EUT

Same as conducted measurement which is listed in 2.5.

3.6. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) and dipole antenna were used as receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-1992 during radiated measurement.

The bandwidth setting on the field strength meter (R&S TEST RECEIVER ESVP) was 120KHz.

The frequency range from 30MHz to 1000MHz was checked.

All the test results are listed in section 3.7.

3.7. Radiated Emission Noise Measurement Results

The frequency spectrum from 30 MHz to 1000 MHz was investigated. All the emissions not reported below are too low against the FCC CLASS B limit..

Date of Test : Feb. 20, 1998 Temperature : 25 °C
 EUT : Image Scanner Humidity : 54 %

Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading dBuV	Emission Level dBuV/m	Limits dBuV/m	Margin dBuV/m
35.006	22.45	1.60	-0.40	23.65	40.00	16.35
68.752	11.48	2.31	15.40	29.19	40.00	10.81
79.996	13.85	2.48	7.70	24.03	40.00	15.97
116.269	19.22	2.97	5.60	27.79	43.50	15.71
133.752	20.44	3.24	3.60	27.28	43.50	16.22
148.753	20.88	3.40	8.90	33.18	43.50	10.32
* 172.504	21.48	3.76	8.50	33.74	43.50	9.76
186.255	21.79	3.89	7.60	33.28	43.50	10.22
191.253	21.89	3.95	6.70	32.54	43.50	10.96
199.997	22.19	3.98	5.60	31.77	43.50	11.73
220.003	22.31	4.27	8.60	35.18	46.00	10.82
270.006	24.75	4.85	2.60	32.20	46.00	13.80
314.997	13.48	5.28	4.70	23.46	46.00	22.54
343.733	14.57	5.64	4.50	24.71	46.00	21.29
367.487	15.54	5.83	5.10	26.47	46.00	19.53
390.010	16.81	5.96	3.80	26.57	46.00	19.43
450.011	17.31	6.67	6.90	30.88	46.00	15.12
480.027	17.38	6.95	4.50	28.83	46.00	17.17
510.012	17.89	7.21	1.60	26.70	46.00	19.30
580.016	18.96	7.79	-1.70	25.05	46.00	20.95

Remark : 1. All readings are Quasi-Peak values.
 2. The worst emission was detected at 172.504MHz with corrected signal level of 33.74dBuV/m (limit is 43.5dBuV/m) when the antenna was at horizontal polarization and was at 2m high and the turn table was at 320° .
 3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

Date of Test : Feb. 20, 1998 Temperature : 25 °CEUT : Image Scanner Humidity : 54 %

Frequency MHz	Antenna Factor	Cable Loss dB	Meter Reading dBuV	Emission Level Vertical dBuV/m	Limits dBuV/m	Margin dBuV/m
39.997	19.26	1.77	7.20	28.23	40.00	11.77
* 68.752	13.03	2.31	13.40	28.74	40.00	11.26
76.253	14.87	2.43	6.70	24.00	40.00	16.00
107.503	17.16	2.81	9.90	29.87	43.50	13.63
134.998	19.11	3.21	3.80	26.12	43.50	17.38
150.002	20.21	3.47	6.60	30.28	43.50	13.22
162.531	21.44	3.64	5.50	30.58	43.50	12.92
190.004	20.85	3.90	5.30	30.05	43.50	13.45
200.004	20.98	3.98	4.50	29.46	43.50	14.04
221.255	22.66	4.29	3.40	30.35	46.00	15.65
240.005	23.44	4.49	4.80	32.73	46.00	13.27
266.257	24.76	4.80	0.40	29.96	46.00	16.04
343.735	14.85	5.64	5.60	26.09	46.00	19.91
367.487	15.03	5.83	8.40	29.26	46.00	16.74
398.762	16.02	6.03	5.60	27.65	46.00	18.35
450.012	16.54	6.67	9.80	33.01	46.00	12.99
487.514	17.54	7.00	4.30	28.84	46.00	17.16
506.263	18.55	7.21	-0.80	24.96	46.00	21.04
560.014	19.06	7.69	0.60	27.35	46.00	18.65

Remark : 1. All readings are Quasi-Peak values.

2. The worst emission was detected at 68.752MHz with corrected signal level of 28.74dBuV/m (limit is 40dBuV/m) when the antenna was at vertical polarization and was at 1m high and the turn table was at 230°.

3. 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

4. DEVIATION TO TEST SPECIFICATIONS

【 NONE 】